

STAT

CLASSIFICATION RESTRICTED **RESTRICTED**
SECURITY INFORMATION
CENTRAL INTELLIGENCE AGENCY
INFORMATION FROM
FOREIGN DOCUMENTS OR RADIO BROADCASTS

REPORT

CD

COUNTRY USSR
SUBJECT Economic - Mining, nonferrous metals
HOW PUBLISHED Monthly periodical
WHERE PUBLISHED Moscow
DATE PUBLISHED Jul 1951
LANGUAGE Russian

DATE OF INFORMATION 1950

DATE DIST. 25 Jan 1952

NO. OF PAGES 2

SUPPLEMENT TO REPORT NO.

THIS DOCUMENT CONTAINS INFORMATION AFFECTING THE NATIONAL DEFENSE OF THE UNITED STATES WITHIN THE MEANING OF ESPIONAGE ACT 50 U. S. C. 31 AND 32, AS AMENDED. ITS TRANSMISSION OR THE REVELATION OF ITS CONTENTS IN ANY MANNER TO AN UNAUTHORIZED PERSON IS PROHIBITED BY LAW. REPRODUCTION OF THIS FORM IS PROHIBITED.

THIS IS UNEVALUATED INFORMATION

SOURCE Gornyy Zhurnal, No 7, 1951.

EXPERIMENTS ON DRILLING BORE HOLES
WITH EKM-1 ELECTRIC CORE DRILLS IN SOVIET BAUXITE MINES

Until recently, drilling of bore holes at the Severoural'sk bauxite mines was done only by pneumatic hammers. In 1950, experiments were made in these mines with EKM-1 electric core drills, designed by Prof V. G. Mikhaylov.

EKM-1 electric drills have motors with a power of 2.5 kilowatts, and the speed of the spindle can be varied between 155 and 1,500 revolutions per minute, with the feed of the spindle per revolution varying between 0.6 and 7.5 millimeters.

For these experiments twist drills were used with a length of 0.5 to 3 meters, a rhombic section of 35 x 18 millimeters, the boring bars being made of U-7 steel. Standard type No 3 cutters were used, reinforced with VK-8 hard alloy. In addition, chisel-shaped cutters were used.

The experiments were carried out in shaft No 4 of Northern Mine No 2. Holes were drilled both in rock (limestone) and in bauxite ore of various types. The following table gives a description of the kinds of rock and the volume of work performed:

Type of Rock	Coefficient of Rock Strength	Holes Drilled	
		No	Total Length (m)
Monolithic, light grey limestone	8	18	40
Red bauxite ore (crude ore)	5	48	115
Same	4-5	65	135
Flagstone, jasper-type bauxite ore	6-7	14	20
Total	--	145	310

- 1 -

CLASSIFICATION

RESTRICTED

RESTRICTED

STATE	<input checked="" type="checkbox"/> NAVY	<input checked="" type="checkbox"/> NSRB	DISTRIBUTION									
ARMY	<input checked="" type="checkbox"/> AIR	<input checked="" type="checkbox"/> FBI										

STAT

RESTRICTED

RESTRICTED

The following table gives data on various methods of drilling:

Tested Methods			Type of Rock	Total Length of Drilled Bore Holes (m)
Spindle rpm	Feed per Revolution (mm)	Speed of Feed (mm/min)		
208	0.6	125	Limestone	8
208	1.32	275	Same	32
208	0.6	125	Wet, red bauxite ore	40
270	0.6	162	Same	75
208	1.32	275	Wet and dry red bauxite ore	1*
				135
208	1.32	5	Flagstone, jasper-type bauxite ore	12
270	1.32	357	Same	8

* The top figure gives the depth of holes in wet ore; the lower figure, for dry ore.

The table below shows the speed of drilling holes with electric drills and pneumatic drilling hammers:

Type of Rock	Average Speed	
	Electric Drilling (mm/min)	Pneumatic Drilling (mm/min)
Wet red ore	120	76
Flagstone, frozen ore	200	64
Dry red ore	240	42
Limestone	210	49

The experiments have shown the expediency of using EKM-1 electric drills instead of pneumatic drilling hammers in the Severoural'sk bauxite mines.

- E N D -

- 2 -

RESTRICTED

RESTRICTED